

IN THE CLAIMS:

1. (Previously Presented) A method for detecting defects in a material, comprising:
obtaining an image of at least a portion of a material's surface;
converting the image into an intensity profile;
selecting an intensity line profile from the intensity profile;
counting a number of defect intensity pixels from the intensity line profile; and
determining a defect density in the material's surface from the intensity line profile of the
intensity profile.

2. (Original) The method as recited in Claim 1 wherein obtaining an image includes
obtaining an electron image.

3. (Original) The method as recited in Claim 2 wherein obtaining an electron image
includes obtaining an electron image using a scanning electron microscope.

Kindly cancel Claims 4-5 without prejudice or disclaimer.

6. (Previously Presented) The method as recited in Claim 1 further including selecting
a plurality of intensity line profiles from the intensity profile and counting a number of defect
intensity pixels from the plurality of intensity line profiles, and further determining the defect density
in the material's surface from the plurality of intensity line profiles of the intensity profile.

Kindly cancel Claim 7 without prejudice or disclaimer.

8. (Previously Presented) The method as recited in Claim 1 wherein determining a defect density of the material's surface includes determining a total number of intensity pixels.

9. (Original) The method as recited in Claim 8 wherein determining a total number of intensity pixels includes determining a number of background intensity pixels and a number of defect intensity pixels.

10. (Previously Presented) The method as recited in Claim 9 wherein determining a defect density includes dividing the number of defect intensity pixels by the total number of intensity pixels.

11. (Original) The method as recited in Claim 9 wherein the total number of intensity pixels comprise a histogram and the background intensity pixels are inside a desired sigma value and the defect intensity pixels are outside the desired sigma value.

12. (Original) The method as recited in Claim 11 wherein the desired sigma value is greater than about 2 sigma.

13. (Original) The method as recited in Claim 12 wherein the desired sigma value is greater than about 4 sigma.

14. (Original) The method as recited in Claim 10 wherein the intensity profile includes a plurality of pixels and determining a defect of the material's surface further includes determining an average intensity of the plurality of pixels or determining a standard deviation of the intensity profile.

15. (Original) The method as recited in Claim 10 wherein the number of defect intensity pixels does not include the number of defect intensity pixels having an intensity greater than an average intensity.

16. (Original) The method as recited in Claim 1 wherein obtaining an image of at least a portion of a material's surface includes obtaining an image of an inner surface of a tubing located in a semiconductor wafer manufacturing facility.

17. (Previously Presented) A system for detecting defects in a material, comprising:
a first subsystem that obtains an image of at least a portion of a material's surface; and
a second subsystem that converts the image into an intensity profile, selects an intensity line profile from the intensity profile, counts a number of defect intensity pixels from the intensity line profile, and determines a defect density in the material's surface from the intensity line profile of the intensity profile.

18. (Original) The system as recited in Claim 17 wherein the first subsystem includes a scanning electron microscope that obtains an electron image.

27. (Original) The system as recited in Claim 26 wherein the desired sigma value is greater than about 4 sigma.

28. (Original) The system as recited in Claim 17 wherein the material is a tubing located in a semiconductor wafer manufacturing facility.

29. (Previously Presented) A method of using a system for detecting defects in a material, comprising:

detecting defects in a material, including;

obtaining an image of the material's surface;

converting the image into an intensity profile;

selecting an intensity line profile from the intensity profile;

counting a number of defect intensity pixels from the intensity line profile; and

determining defects in the material's surface from the intensity line profile of the intensity profile; and

rejecting the material based upon a number of the defects in the material's surface.

30. (Original) The method as recited in Claim 29 wherein the material is a subset of a batch of the material and rejecting includes rejecting the batch of the material.